

Sustainable Community Development: A Brief Introduction to the Multi-Modal Systems Method

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Abstract

There is still no agreement on the concept of sustainable development but, what was initially only seen as an equation of economic growth and protection of environment resources, has now began to include several other dimensions, such as the social, cultural, ethical, legal and political. However, this requires a scientific perspective capable of dealing with ethical and normative questions. The Multi-Modal Systems Method intends to tackle the sustainable issue in a total manner, based on a trans-disciplinary approach and on a method that makes possible practical applications in empirical contexts. This article presents an introduction to this method in the context of the sustainable development of communities.

Keywords: sustainability, systems, communities, Dooyeweerd, de Raadt.

1. Introduction

With the passage of time the concept of sustainable development has acquired a substantial semantic load and diverse applications. It has gone through a journey that started with theoretical and scientific deliberation and then passed through political propaganda (Biocidade, 2009) ending up as a strategic tool of marketing to obtain financial resources. Initially termed “eco-development,” the concept has been given a theoretical formulation by Ijnacy Sachs (Paulista, 2008), a French economist now resident in Brazil. In a general manner, sustainable development is understood by many not as a means of changing the present means of production and its structural mechanism that produces unequal distribution, but as a means to attain economic growth with an increase of benefit for humanity while at the same time, preserving the natural resources for future generations (Paulista, 2008; Sachs, 2004, Oliveira, 2006).

There is no clear consensus about this concept and its implications; the model of development that seeks economic growth is confronted with the depletion of natural resources necessary for production, as well as an intensification of social inequalities (De Sousa Santos, 2005). Some people refer to this as a multiple crisis, the dimensions of which affect not only the environment, but translate into tensions that generate a reduction of biocultural diversity, an increase in poverty and social inequality (Compas, 2007). Given that the crisis has an impact on diverse dimensions of human life, we require a focus on sustainable development which deals with these areas in a harmonious manner. In this context, different approaches have been advanced, beginning with the idea of economic development allied with the ability to renew the natural resources. Sachs suggests the importance of social inclusion (Sachs, 2004). In addressing this issue, the Brazilian Institute of Geography and Statistics (2004) argues that it is

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necessary to include an institutional dimension in order to articulate policies necessary to solve these issues. Others point to the importance of the legal, cultural, psychological (Paulista, 2008), spatial and geographical dimensions. Some draw our attention to the relevance of the spiritual and human dimensions, the norms of which, far from being neutral, depend directly upon our vision of the world and our religious beliefs.

Religion offers man a framework of reference to interpret reality (Dooyeweerd, 2003). According to Geertz (2001), there is no way to understand the diverse social phenomena without relating them to religion. For example, a Bhuddist will relate to nature in a different way to a Christian, Muslim or secular humanist. Therefore, it does not make much sense to discuss the ethical conception of the preservation of the natural resources without taking into consideration the different religious perspectives together with the object of discussion. As regards to science, its fragmented knowledge, based on old dichotomies between science and nature, and science and values, has rendered it ineffective to elaborate a full concept of sustainable development, characterised by a high level of complexity. According to Edgar Moran (1983 p. 14) "...the problem of complexity has become a vital social demand in our century: we discover mutilating thought, that is, thought that misleads itself, not because it has insufficient information, but because it is incapable to organise the information and knowledge, is a kind of thought that produces mutilating actions." Therefore, we need a new epistemic approach that integrates the different types of knowledge as well as the need for self-knowledge despite the rational character of understanding so as to comprehend that there are phenomena "that is at the same time, irrational, rational, a-rational and super-rational." (Floriani, 2006, p.71)

All these contexts opens doors for new dialogues and propositions that seek answers to questions such as: what theoretical model would permit an observation of diverse dimensions necessary to understand fully sustainable development? How are these dimensions interrelated? How can we identify them in a concrete reality in real communities that daily confront the consequences of our present model of economic production? Likewise, how can sociology help us deal with these issues?

The multi-modal systems method (de Raadt, J. D. R, 2000; de Raadt, V. D. 2002) referred to from now on simply as MMSM, which captures knowledge from philosophy, theology, cybernetics, management, sociology and informatics, may provide a viable starting point to provide the answers needed. The present article aims to provide a general introduction to MMSM examining the main points covered by the authors in a diverse number of articles and books, emphasising some of the elements that are relevant to enriching the debate about sustainable development in communities and its potential to apply its method in a practical way.

2. A New Horizon

The problem of sustainability requires answers to normative questions such as: what is a good community? What type of people should we be and what should we do or not do with our lives? In what way should a sustainable community serve its members so that in turn, its members may work to develop it? (de Raadt, V. D, 2002; de Raadt, J. D. R., 2000) In the opinion of these authors, these questions are pertinent even in Sweden, a country where they lived and worked; a country that is considered to have an excellent social infrastructure and a government that offers a diversity of public policies that aim to meet a great diversity of socio-economic demands for the well-being of its population. However this welfare state, through its control of practically all social structures, by which its citizens are institutionally controlled and intimidated, has been shown to weaken the enterprising spirit of its population, especially among the young. Moreover, it has engendered a climate of anti-intellectualism in the universities and irrelevance in its ecclesiastical structures. In small villages in rural regions of the country, such as Rosvik in the north of Sweden where research has been conducted, a

significant loss of population has been registered to the point that local authorities had begun to reduce the number of grades offered in the local school. Within this context we can distinguish two types of poverty – material and spiritual (de Raadt, J. D. R. 2000). The first one is more easily identified, through hunger, violence, disease and a high mortality rate; these create oppression and are characterised by the lack of financial resources. However, it is more difficult to admit spiritual poverty that manifests itself through a lack of meaning in life, emptiness and depression and which exist in the midst of abundant material resources. This situation requires a scientific approach that addresses the normative questions in the context of “a new way of thinking that focuses on a broader reality and that captures within its lens the misery of the affluent”. (de Raadt, J. D. R. 2000 p. 18) We find here a great challenge to modern science, in particular economic and technological research, that has difficulties in addressing these questions:

Modern science did not detect, nor know how to handle, the normative problems of sustainability, which were interconnected with not only the economy, but also the environment. Modernism ignored the importance of human responsibility and approached human or natural problems armed with instrumental rationality. Its *modus operandi* was causes and explanations, and its solutions, mechanical or technological fixes. (de Raadt, V. D. 2002 p.4)

In this way, the modern scientific perspective tends to give greater emphasis to material questions to the detriment of the normative issues. According to Floriani, this is the fruit of the hegemony of instrumental rationality which claims to be “destitute of values” but which in truth, “is deluded by making neutrality itself its value” (2006 p. 67). To the understanding of basic reason must be added an auto-critique that recognises that there are phenomena that lie beyond its limits, and that it is necessary and urgent “for reason to become open and enter into dialogue with other expressions of rationality.” (Floriani, 2006 p. 71)

The modern scientific vision of the world is marked by fragmentation: What happens in one sphere of life is independent from another sphere, as for example, when it becomes possible to believe that issues of morality and values of a personal nature can be kept insulated from the professional realm - “a president that cheats on his wife and artfully lies to a court can still deliver a solid economy and peace in the world.” (de Raadt, J. D. R. 2000 p.18) In response to this, it becomes indispensable for a new scientific approach and a new method of application (de Raadt, V. D. 2002) that is able to “help communities and other social systems ensure their viability and manage the crisis they confront”. (de Raadt, J. D. R. 2000 p. 19) Viability is here understood as a state where life is preserved in its full expression, including all its diverse aspects – natural and cultural, which are at the same time, systemically interlinked (de Raadt, 2001) These linkages are present in all spheres of life including artistic, intellectual, social, familial – including marriage, work, voluntary service, preservation of traditions, learning, religious ethic, and social, economic and cultural development. This is based on the theory that “when we face a crisis and any of these spheres of life is threatened, our whole life is in question.” (de Raadt, J. D. R. 2000 p. 19) Therefore “life is something much more than existence.” (de Raadt, J. D. R. 2000 p. 64) For these authors, a Hebraic perspective of life, with the personal involvement of God in the universe and in the questions of human life, provides a view of life that is more than just existence. This approach is opposite to the Greek perspective, which sees the world as impersonal and mechanic (de Raadt, V. D. 2002). To deal with these issues MMSM aims to:

- a) help identify the most important normative factors that present a threat to the community; organise and integrate the knowledge and information that flow from the diverse academic disciplines founded upon a trans-disciplinary approach to sustainability; and gather practical knowledge, both local, non-local and also theoretical;
- b) construct a model that shows how these factors inter-act with each other and distinguish between strengths and weaknesses that may, in the long-term, either enable or threaten the viability of the community;

- c) plan and design responses to these threats that allow us to define the qualities that we wish a community to possess; identify activities that need to be organised, implemented and managed; indicate the people necessary to carry these out; and finally, provide an evaluation of the objectives that have been concretely reached.

To do this, MMSM builds upon two foundations, firstly a normative approach to systems science as laid out by Ludwig von Bertalanffy (1971) and his successors, and secondly, by the theory of the modal spheres as espoused by Herman Dooyeweerd (1984). The aim is to “expand science to add the norms of our human life to our understanding of the determinative part of the world.” (de Raadt, V. D. 2002 p. 5) However it is not the purpose here to deal with the specifics of these theories. For a better understanding of the systemic perspective as proposed by von Bertalanffy it is valuable to read his work (1971). To gain a critical reflection about this way of thinking and its application to social theories, one may well start by reading Bailey (2002) as well as the comments by Pitirin Sorokin about the influence of systems thinking on the diverse sociological theories (1969 p. 125-519). An introduction to Dooyeweerd's thought is provided by the author himself (2006) and the first volume of his opus magnum *A New Critique of Theoretical Thought* (1984, Vol. 1)

3. The Basic Structure of the Multi Modal Systems Method

According to de Raadt, the law of complexity developed by W. Ross Ashby in his studies of cybernetics point out that complex problems require complex solutions (1970). Therefore, “any system must match as closely as possible its environmental uncertainties with an equivalent amount of information if it is to remain viable.” (de Raadt, J. D. R. 2000 p. 23) This establishes that sustainability is of a trans-disciplinary nature, that is, it includes the “mastery of more complex approaches between the diverse forms of knowledge, not only of a scientific nature, but also cultural, religious, and others rooted in tradition.” (Floriani, 2006 p. 73) When setting out the structure of MMSM, de Raadt emphasises the importance of thinking in a diversity of manners. According to him, there is an established tradition of resolving a problem through the identification and categorisation of the things that, based on logic, may be classified by their similarity. Thus the objective is to understand everything through its parts, seeking always to find the most simple elements. This way of thinking, that was defended by the French philosopher Renee des Cartes, has exercised great influence in modern science (Sousa Santos, 2005; Descartes, 2005).

However, when one is confronted with the sustenance of life and the crisis that challenges it, it is crucial to understand the totality and the links that unite its parts. Therefore, in such a situation, there needs to be beforehand a vision of the totality in order to understand the interaction of the parts and this requires a new way of thinking (de Raadt, J. D. R. 2000). This necessity was also perceived by Dooyeweerd. Dooyeweerd began the development of his philosophy by understanding that the role of philosophy was the investigation and the comprehension of diversity, evinced in the modalities that are inter-related in the cosmos (Kok, 1998). According to him, the diversity experienced in the empirical reality is facilitated by diverse ontological aspects – modalities or modes of being – created and sustained by God through whom everything is manifested and found in order and coherence. Dooyeweerd's ontological perspective proposes initially fifteen aspects which, in descending order are: credal (related to faith, belief and convictions), ethical, juridical, aesthetic, economic, social, linguistic, historical/formative, logical, sensitive, biotic, physical, kinematic, spatial and quantitative.

Within this modal matrix, reality is manifest in all its plenitude in human experience and, as a result, it also makes possible the diverse social institutions and the various types of relationships that are present in a community (Dooyeweerd, 1986). Therefore an epistemological perspective based on this modal structure provides a model that allows us to

contemplate the issues related to sustainable development in communities in a trans-disciplinary manner and with all their complexity. This is what MMSM intended to incorporate. The identification of these modalities is related with the historical emergence of the academic disciplines (Figure 1) which have been acknowledged in many ways from the very beginning of philosophy (de Raadt and de Raadt, 2008). There are, of course, academic disciplines that focus their studies on a diversity of modalities and not only one. Such is anthropology, for example, which studies the modalities belonging to such domains as character, community and intellect respectively. The same happens with sociology which studies institutions that embrace vocations that focus on diverse modalities.

FIGURE 1 ABOUT HERE

In addition to introducing extra modalities to the original matrix proposed by Dooyeweerd (2006) a new modal order has been proposed as well as a division in diverse groups: character, community, intellect, vitality, matter and order which the author calls domains, and which have been derived from Biblical thought and are implicitly referred by its authors (de Raadt, J. D. R. 2000). Each modality, in its respective domain, provides the foundation for the existence of diverse types of systems, either material or living. Based on the Dooyeweerdian idea of modal sphere of sovereignty, each social system – formed by the operational, economic and social modalities, and grouped within the domain of community – has its own specific vocation which is imputed by a particular modality according to de Raadt:

Although every social system is subject to the commandments of every modality, there is one modality that endows it with its ultimate mission. The essence of that particular modality becomes the essence of the system; it furnishes it with character and uniqueness and distinguishes it from other types of systems. (2002 p. 68).

Therefore, each social system intersects a diversity of modalities but bases its mission in only one of them. Therefore, the family and charitable associations, for example, find their vocation in the ethical modality. The theatre, cinema and dance company find it in the aesthetic modality; the courts and the state in the juridical modality; schools and universities in the epistemic; newspapers and radio stations in the inforamatory; museums and heritage institutions in the historical; the church, synagogue and others in the credal and so on (Figure 1). As a result, a critical situation in a society may be generated when an institution becomes regulated by norms that are beyond the vocation that characterises it. In the same way, there is a risk that some social systems may dominate others by constraining their vocational span. To avoid this, each social institution must have its own sphere of responsibility and authority. Social systems fulfil their responsibilities through work which is not restricted to carrying out tasks or to the accumulation of financial resources, but the realisation of a vocation in the sense of destiny, call and realisation. It is service that provides value by ensuring sustainability for others and the community as a totality. According to the authors this is the true meaning of the word “profession” and they suggest that it is necessary to return to the vocational norms that existed prior to the industrial revolution when work was seen as a sacrificial service for the benefit of the community. It may be worth remembering Weber identified, at the beginning of the twentieth century, that the Protestant ethic of work was an important contributing factor to the development of European society (2004) .

Inside the modal structure, each modality resides within a specific domain. In the character domain are found the ethical, aesthetic and juridical modalities; within the community domain are found the operational, economic and social modalities; the epistemic, informative, historical and credal modalities reside within the intellectual domain; in the vital domain are found the

psychic and biotic modalities; in the material domain are the regulatory, physical, kinematic and spatial modalities; and finally, the order domain is constituted by the numeric and logical modalities. Thus nature is formed by the vital, material and order domains while culture is composed of the intellectual, community and character domains; all these domains have their respective modalities (de Raadt and de Raadt, 2008). It is important to note that the inter-modal coherence is unbreakable, for they form one total structure discarding the classical dichotomy between nature and culture, and allowing a scientific, trans-disciplinary perspective based on a holistic, empirical reality. Once the meaning of each modality cannot be reduced to the other ones, each scientific discipline can develop its own methodology without however, losing the systemic unity of the modalities but, on the contrary, making more evident their modal interrelationship of knowledge. By horizontally projecting the material, vital and community domains, four types of living systems may be identified: social, animal, biological and environmental systems (Figure 1). In this sense the material systems such as mountains, rivers and seas, although not in themselves alive, provide the essential habitats for human beings, animals and plants; just as the vital domain provides a biological habitat for human culture which finds its expression in a variety of social groups and institutions such as schools, families and clubs. The intellectual and character domains do not have horizontal projections but provide the foundation for civic and personal life as well as for social institutions.

As can be seen in Figure 1, the lower modality – determinative links – provide a foundation to the modalities above while at the same time, these latter exert an influence on the lower ones – normative links. In this way a modality can exert either a constraint or an inspiration to another, but not both (de Raadt, J. D. R. 2000). Furthermore the higher modalities tend to be more normative than the lower modalities and conversely the lower modalities tend to be more determinative than the higher modalities. As a result, the order of the modalities must be thought out carefully for an incorrect theoretical perspective may have a negative impact.

4. More About Modalities

As we discussed earlier, the modalities form a coherent structural matrix that allows us to observe our empirical reality. Due to the importance that this matrix is given, its characteristics merit a closer examination. The ethical modality may be described by the Greek word *agape*, often translated by the word love or charity but which, in reality, has a far more profound meaning. *Agape* loves the unlovable which at times may be considered as repulsive or may have nothing to offer in return; it is sacrificial love, that puts on the one who practises it a moral obligation. It is different to the love expressed in the term *eros* which is inspired by the attractiveness of the loved object (de Raadt, J. D. R. 2000).

The aesthetic modality makes all forms of art possible; in it grace is manifested not as an end in itself but as reflecting inherent qualities unique to every human being. The juridical modality is guided by the concept of equity, that is everyone according to what he deserves, and it is the sphere of jurisprudence. The operational modality makes possible human work, understood here as the vocational manifestation of *agape* love. It is therefore love put into action. The social modality provides the basis for social structure, and allocates to each one a profession (understood as the assignment of responsibilities and the allocation of authority). In the epistemic modality resides knowledge and understanding; the informatory modality is the habitat of information and establishes contact between the perception and the knowledge of the object (de Raadt, J. D. R. 2000). The historical modality provides the foundation for information. Thus, information originates from a determined historical context which is, in turn, patterned by the previous application of earlier information. Likewise the significance of history is determined by the beliefs residing in the credal modality, beliefs that are not reduced to internal or subjective feelings upon which people base their decisions but, on the contrary, are inspired by concrete historical events which many recognise as divine acts (de Raadt, J. D. R. 2000). This type of belief provides a determinative link upon which the historical modality is

based. It is thus that history may illustrate how acts of sacrificial love, based on hope, may change history.

The biotic modality makes the processes needed for the existence and maintenance of life possible. Life is made possible through regulation, which is studied by cybernetics, based on a process of self regulation that maintains a state of stable equilibrium (de Raadt, J. D. R. 2000). These concepts of equilibrium and stability are crucial for sustainability and essential to all living systems. Therefore, a state of equilibrium in a community is only reached when all parts of a system in each of the modalities are also in equilibrium (de Raadt, J. D. R. 2000). Therefore, negative impacts occur when, for example, due to a short-coming of knowledge and information, work is seen as a means of generating economic resources to attain hedonist and individualist goals and are not motivated by a sacrificial ethic that seeks the common good. There are also impacts generated by false beliefs that compromise all systems when modalities are reduced by human intervention to one unique sphere. Such a case is economic reductionism, which is guided by the belief that viability of all systems can be attained through the regulation exercised by the market. This economic optimisation imposes its own rules upon other modalities and therefore endangers a diversity of social systems (de Raadt, J. D. R. 2000).

5. Crisis

The authors adopt as a base the concept of community in the most ample sense. That is, the method aims at the sustainability of the community as a whole, including its unique social structures such as families, churches, political parties and public organisations (de Raadt, V. D. 2002). Regarding sustainability, the term is extensively used today to refer to damage to the natural environment caused by economic and technological development, but it often excludes social and cultural damage. By contrast, MMSM embraces the totality, that is, the natural, human and cultural environment (de Raadt, V. D. 2002). This means that when a community slips into a state of crisis, a diversity of factors that should promote its stability are threatened, making the community unviable. According to Sachs, “a transition to a sustainable development commences with crisis management.” (2004 p. 17) There are normative crises such as economic depressions and determinative crises such as a natural disaster but there are also a combination of crises both normative and determinative. For example, a flood may damage crops which in turn may result in a violent revolt organised by local farmers. Likewise grand-scale deforestation due to normative human action may result in determinative effects, such as flooding. It is evident, therefore, that it is necessary to address the normative questions when evaluating the factors that threaten a community (de Raadt, J. D. R. 2000). Modern science, when considering normative factors, still tends to interpret them as being determinative. However, despite our modern science, our world appears to be non-viable in all domains: in our character, in our communities, in our declining intellectual standards at our universities and schools and in the destruction of our natural environment (de Raadt, J. D. R. 2000). De Raadt emphasises that we need a science that will not only study how things are but how they ought to be. Unfortunately modern science classifies reality in a fragmented manner, without an understanding of the totality, indifferent to how diverse ways of understanding connect with each other. “The greatest threat to our society is not lack of work or economic decline. It is our lack of understanding of our responsibility in this universe, of our plight and our destiny.” (de Raadt, J. D. R. 2000 p. 46)

6. Method

According to de Raadt there is a difference between methodology and method. The first occupies itself with the study of scientific thought, while the other, guided by the first one, deals with the manipulation of information (de Raadt, 2001). As we have argued, the model

provided by the multi-modal structure helps us analyse the factors that threaten the viability of the community, that is, its sustainability. To the researchers who apply it, the method provides an information model that collects data regarding the diverse modalities, providing thus a very useful tool for teams engaged in trans-disciplinary work and with a more complete but non-exhaustive approximation of reality. But in real life, how does one apply this model?

- a) The first step is to collect information and during this stage one can use diverse sources: scientific articles of diverse disciplines, bibliographic references, journals, magazines, institutional documents, interviews, community panels, focus groups and the researcher's own perceptions.
- b) Next, items are extracted from the sources, each one of them containing one main idea, a selection which is similar to the method used to relate textual passages with categories (Bauer and Gaskell, 2004) This process is termed *itemising*. Given that several teams and many sources may be involved, the number of items can be very high. To deal with this a specialised software, SmCube, has been developed to process all the data. This software was developed with the support of the Division of Information Systems of the Swedish Defence forces. It has been applied to support Multi-Modal Systems research in Sweden, Australia and other countries (de Raadt, 2001)
- c) Once itemisation has been completed, each item is linked to factors that are vital to the sustainability of the community. These factors have been preliminarily chosen as threatening the viability of the community. However the selection of factors is not final but flexible and can be changed several times as the progress of analysis suggests other factors that might replace the earlier ones or may be combined (de Raadt, J. D. R. 2000). In a research carried out in Rosvik, a village in northern Sweden, seven factors were selected (Figure 2): ethics, in this case concern for some moral issues; competence, the ability of individuals to actively participate in their communities; statism, or the effect of excessive institutional control by the state on the local population; community sense, or the necessary structures to allow for participation in the community; education, which addressed the educational crisis in general, and in the case of Rosvik, a decrease in its population resulting in the closure of a grade at the local school requiring children to attend school in another village (de Raadt, V. D. 2002); heritage, the role of which was seen as strengthening the community's identity; religion, as a source to generate inspiration and vision (de Raadt, V. D. 2002). An appropriate choice of factors is not only dependent on the experience of the researchers but also on the diverse suggestions in the literature about sustainability. Therefore several factors dealt with in different sources may also be included in the model.

FIGURE 2 ABOUT HERE

- d) The selected factors are then used to develop a model and generate an analytical matrix (Figure 2).
- e) To analyse the data appropriately, one must examine their inter-relationships. (de Raadt, V. D. 2002) We may ask: what does the literature we have searched say about each factor? What does it say about the inter-relationships between the factors? What one should aim at the end of this phase is to obtain a model that shows how these factors are inter-connected (Figure 2). The links between the factors are referred to as arrows. In this manner, a link between two factors is described as: ethics \Leftrightarrow religion, with the more normative factor preceding the more determinative factor (de Raadt, J. D. R. 2000).
- f) Next comes the identification of whether the impact of a factor in a modality is positive or negative – representing the first with white arrows or black arrows respectively - on

the sustainability of the model. This represents, in an approximate manner, the state of viability of the community researched. A factor can exert a constraint – when it is more determinative, or an inspiration – when it is more normative. One must take into consideration that a constraint is not necessarily bad, for constraints can be beneficial, just as inspirations can be detrimental to a community. For example, in the link between the factors citizenship \Leftrightarrow education, a constraint may be exercised upon citizens through the school and university curriculum. As a result people may develop attitudes of self-interest and self-promotion in their future professional lives. On the other hand, an inspiration can be promoted through relating citizenship with education. Thus an education that is inspired by strategies that promote love through learning which demands in turn an attitude of sacrifice through long hours of study that not necessarily result in benefits to the community in the short term (de Raadt, J. D. R. 20002). Therefore it is important that during the analysis each item is carefully examined.

Once the model has been built, one has an overall view of the community studied and which reveals points of equilibrium and disequilibrium which strengthen or weaken sustainability in the long term. The model makes it also possible to identify the domains involved in the process as well as the institutions that are viable or non-viable. In summary, the model presents in an integrated manner, the factors that have been identified in a transdisciplinary manner, and their impact on the social systems in the community being analysed.

7. Redesigning for Sustainability

With a map of the community on hand it is now possible, and this is the last step in MMSM, to redesign the community with a view of providing it with sustainability in the long term, through various types of social intervention such as the development of policies; school and university curriculum adapted to social problems; organising campaigns to arouse public conscience and awareness; education for sacrificial citizenship; promotion of ethical attitudes that do not damage the common good; strategic and intentional engagement of the ecclesiastical structures. This stage of MMSM involves three steps:

- a) identification of the qualities of each factor in the model according to a vision desired for the community;
- b) formulation of operations, that is, clarification of the activities necessary to obtain the desired qualities;
- c) specification of the systems or the social groups necessary for the implementation of the operations formulated.

As a way of evaluating the progress of redesign, new studies can be carried out for comparison purposes making it thus possible to reorganise the operations and the systems involved in the process of a sustainable community development (de Raadt, V. D. 2002; de Raadt, J. D. R. 2000)

8. Conclusions

MMSM provides a practical method to collect data regarding sustainability, that is not restricted just to the theoretical and academic debates but supplies strategic information that makes social intervention possible. Furthermore, it shows that the concept of sustainability cannot just embrace the preservation of the natural environment or economic growth, for, at the end, the environment is as much a physical space as much as it is a normative space of which humanity is part and within which it lives. Finally, the improvement and enhancement of MMSM could be attained, in my opinion, by the following activities:

- a) a study to evaluate its applicability in the social context of Brazil

- b) further study of the difference between the theory of modal spheres as originally proposed by Dooyeweerd and as altered by de Raadt, permitting a critical revision of as much one, as the other;
- c) an application of the Dooyeweerdian transcendental critique as an element to help select sources and items that should be included in the analytical matrix of MMSM and finally;
- d) deeper articulation and dialogue about sociological theories including Dooyeweerd's work in social theory (1986).

Soli Deo Gloria

References

- Ashby, W. Ross (1970). *Introdução a cibernética*. São Paulo: Perspectiva.
- Bailey, Kenneth D. (2002) *Systems theory*. In: Turner, Jonathan H. (eds.). *Handbook of sociological theory*. New York: Kluwer.
- Bauer, Martin W. and Gaskell, George (2004) *Pesquisa qualitativa com texto, imagem e som: um manual prático*. 3rd ed. Petropolis, Brazil, Vozes.
- Bertalanffy, Ludwig von (1977) *Teoria geral dos sistemas*. 3rd ed. Petropolis, Brazil, Vozes.
- Biocidade (2009) *Em busca da cidade sustentável*. Curitiba, Brazil, Prefeitura Municipal de Curitiba.
- Compas (2007) *Principles of endogenous development*. In: *Learning endogenous development: building on bio-cultural diversity*. UK, Practical Action Publishers.
- de Raadt, J. D. R. (2000) *Redesign and Management of Communities in Crisis*. Parkland, Universal Publishers.
- de Raadt, J. D. R. (2001) *A Method and Software for Designing Viable Social Systems*. Parkland, Universal Publishers.
- de Raadt, J. D. R. and de Raadt, Veronica D. (2008) *Arresting the Collapse of the City Through Systemic Education: A Case Study of Melbourne*. *Systemic Practice and Action Research*, 21: 299-322.
- de Raadt, Veronica D. (2002) *Ethics and Sustainable Community Development*. Parkland, Florida, Universal Publishers.
- De Sousa Santos, Boaventura (2005) *A crítica da razão indolente: contra o desperdício da experiência*. Vol. 1. São Paulo, Cortez.
- Descartes, René (2005) *Meditações metafísicas*. São Paulo, Martins Fontes.
- Dooyeweerd, H. (1984) *A new critique of theoretical thought*. Volume I-II. Canada, Paideia. <http://www.reformationalpublishingproject.com/pdf_books/Scanned_Books_PDF/ANewCrítiqueofTheoreticalThoughtVolsI_II.pdf> (Accessed 11 February 2010)
- Dooyeweerd, Herman (1986) *A Christian theory of social institutions*. California, La Jolla.
- Dooyeweerd, Herman (2003). *Roots of western culture: pagan, secular, and christian options*. Canada, The Edwin Mellen Press.
- Dooyeweerd, Herman (2006) *Encyclopedia of the science of law*. Vol. 1. UK, The Edwin Mellen Press.
- Floriani, Dimas (2006) *Ciências em trânsito, objetos complexos: práticas e discursos socioambientais*. *Ambiente e Sociedade*, 9:65 -80. <<http://www.scielo.br/pdf/asoc/v9n1/a04v9n1.pdf>> (Accessed 29 July 2011).
- Geertz, Clifford (2001) *O beliscão do destino: a religião como experiência, sentido, identidade e poder*. In: Geertz, Clifford. *Nova luz sobre a antropologia*. Rio de Janeiro, Zahar Editora.
- Kok, John H. (1998) *Patterns of the western mind: a reformed christian perspective*. 2ed. Iowa, Dordt College Press.
- Morin, Edgar (1983) *O problema epistemológico da complexidade*. Lisboa, Europa-América.

- Oliveira, Gilson Batista (2006) Uma discussão sobre o conceito de desenvolvimento. In: Oliveira, Gilson Batista and Souza-Lima, José Edmilson de (eds). *O desenvolvimento sustentável em foco: uma contribuição multidisciplinar*. São Paulo, Annablume Editora.
- Paulista, Geralda; Varvakis, Gregório and Montibeller-Filho, Gilberto (2008) Espaço emocional e indicadores de sustentabilidade. *Ambiente e Sociedade*, 11: 185- 200. <<http://www.scielo.br/pdf/asoc/v11n1/12.pdf>> (accessed 29 July 2011).
- Sachs, Ignacy (2004) *Desenvolvimento: incluyente, sustentável, sustentado*. Rio de Janeiro, Garamond.
- Sorokin, Pitirim A. (1967) *Novas teorias sociológicas*. Porto Alegre, Brazil, Editora Globo.
- von Bertalanffy, Ludwig (1971) *General Systems Theory*. London, Penguin.
- Weber, Max (2004) *A ética protestante e o “espírito” capitalismo*. São Paulo, Companhia das Letras.

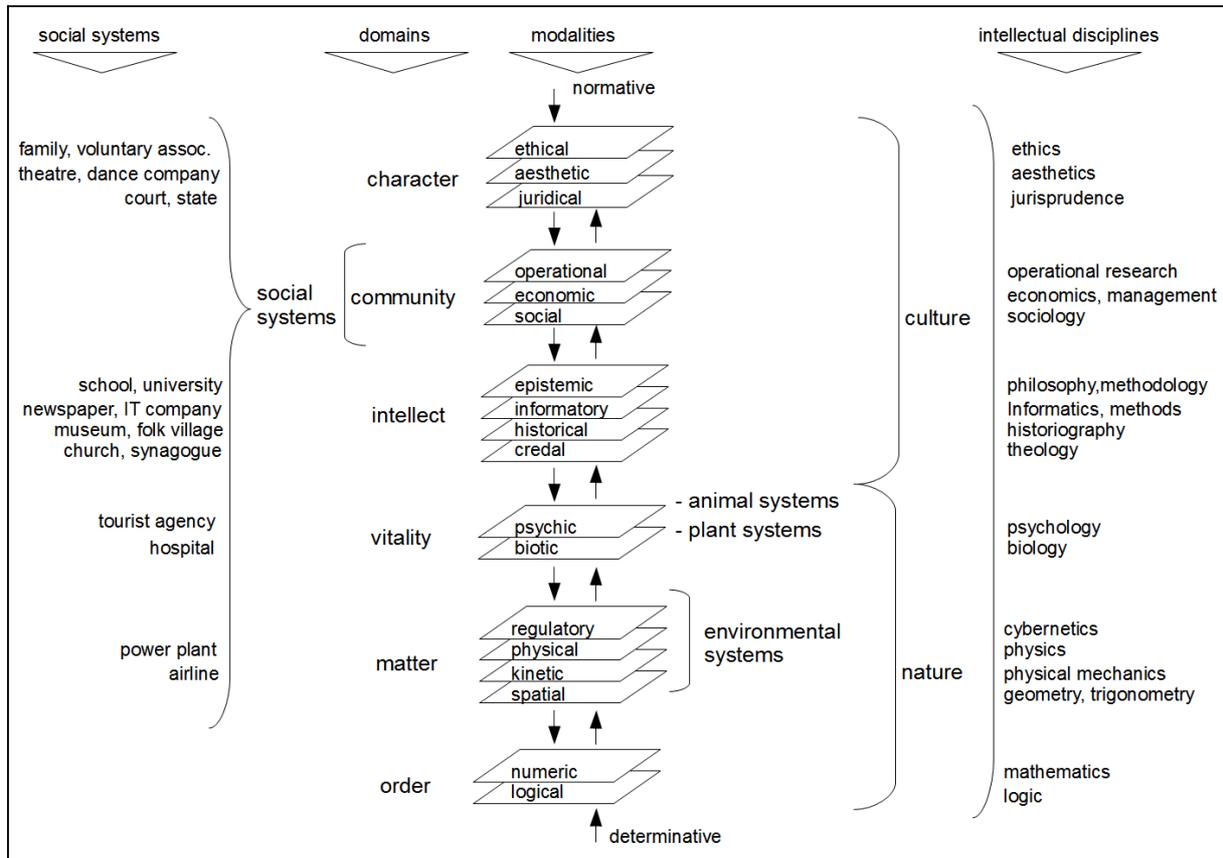


Figure 1: Multi-Modal Systems Structure

(Source: Adapted from de Raadt, J. D. R. 2000; de Raadt, V. D. 2002; de Raadt, J. D. R. and de Raadt, V. D. 2008)

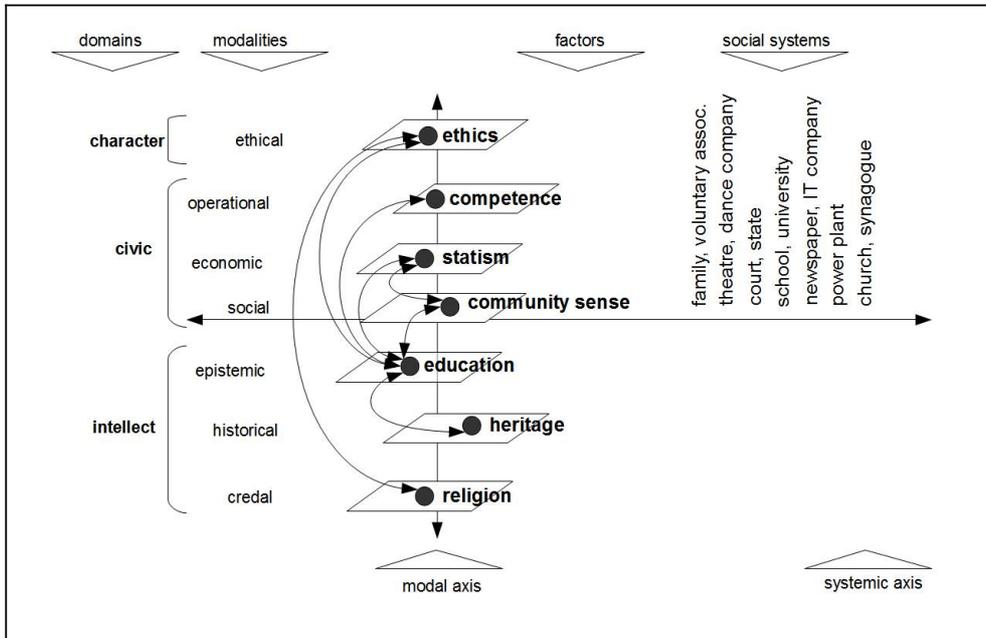


Figure 2: Multimodal Analysis Model
 (Source: Adapted from de Raadt, 2002)